Reclining Module for Recliner with Two Side Frames

Field of Invention

The present invention relates to reclining module for a recliner with two side frames.

Background of Invention

US Patent No. 5186518 describes a conventional recliner that includes a pair of armrest frames and a specific reclining device integrated with the pair of armrest frames. The specific reclining device cannot be used together with a different pair of armrest frames. The reclining device includes many parts so that it is complicated in structure. Most of the parts are not connected with one another before they are assembled with the side frames so that their assembling is troublesome.

The present invention is therefore intended to obviate or at least alleviate the problems encountered in prior art.

Summary of Invention

It is an objective of the present invention to provide a reclining module that can be used together with various pairs of side frames.

It is another objective of the present invention to provide a simple reclining module for a recliner that includes two side frames.

According to the present invention, a reclining module is provided for a

recliner that includes two side frames. The reclining module includes a backrest frame for pivotal connection with the side frames, a stool frame for pivotal connection with the side frames, a principal link connected between the backrest frame and the stool frame, and a hydraulic cylinder connected between the backrest frame and the stool frame. The hydraulic cylinder includes a handle movable from a first position where the hydraulic cylinder cannot be extended and withdrawn to a second position where the hydraulic cylinder can be extended and withdrawn.

Other objects, advantages and novel features of the invention will become more apparent from the following detailed description in conjunction with the attached drawings.

Brief Description of Drawings

The present invention will be described via detailed illustration of the preferred embodiment referring to the drawings.

Figure 1 is a perspective view of a recliner according to the preferred embodiment of the present invention.

Figure 2 is a perspective view of a reclining module for the recliner of Figure 1.

Figure 3 is a side view of the reclining module of Figure 2.

Figure 4 is similar to Figure 3 but shows the reclining module in a different position.

Figure 5 is similar to Figure 4 but shows the reclining module in a different position.

Figure 6 is similar to Figure 5 but shows the reclining module in a different position.

Figure 7 is similar to Figure 1 but shows the recliner in another position.

Detailed Description of Preferred Embodiment

Figure 1 shows a recliner 10 according to the preferred embodiment of the present invention.

Referring to Figure 2, the recliner 10 includes two side frames 60 (shown in phantom lines) and a reclining module. The recliner 10 may include different pairs of side frames and the reclining module can still be used together with the various pairs of side frames. The reclining module includes a backrest frame 20, a stool frame 30, two links 40 and a hydraulic cylinder 50.

Each side frame 60 includes an upper member used as an armrest and a lower member used as a foot. The side frames 60 are preferably made of wood in consideration of weight. The side frames 60 will not be described in detail for being conventional.

The backrest frame 20 includes two plates 21 each for attachment to related one of the side frames 60, two links 22 each pivotally connected

with related one of the plates 21 and a crossbar 23 connected between the links 22. Each link 22 includes an upper portion above the crossbar 23 and a lower section below the crossbar 23. Although not shown, a backrest plate is secured to the upper sections of the links 22, and a pad made of sponge is attached to the backrest plate in order to provide a soft feel to a user.

The stool frame 30 includes two linkages 32. Each linkage 32 includes a plate 31 for attachment to related one of the side frames 60, a first link 33 pivotally connected with the plate 31, a second link 35 pivotally connected with the first link 33, a third link 36 pivotally connected with the plate 31, a fourth link 37 pivotally connected with the third link 36 and a bracket 38 pivotally connected with the second link 35 and the fourth link 37. A crossbar 34 is connected between the first links 33. A spring 39 is connected between the plate 31 and the third link 36 of one of the linkages 32. Although not shown, a stool plate is attached to the brackets 38, and a pad made of sponge is attached to the stool plate in order to provide a soft feel to the user.

Each link 40 is connected between the lower section of related one of the links 22 and the crossbar 34. Thus, the backrest frame 20 is connected with the stool frame 30 by means of the links 40.

The hydraulic cylinder 50 is connected between the lower section of one of the links 22 and one of the plates 31. Thus, the positions of the backrest frame 20 and the stool frame 30 are determined by means of the

hydraulic cylinder 50. The hydraulic cylinder 50 includes a handle 51 for control over the hydraulic cylinder 50.

The handle 51 can be pivoted between a first position shown in Figures 3 and 6 and a second position shown in Figures 4 and 5. In the first position of the handle 51, the hydraulic cylinder 50 cannot be extended and withdrawn. In the second position of the handle 51, the hydraulic cylinder 50 can be extended and withdrawn.

The handle 51 is normally in the first position. Referring to Figure 3, the hydraulic cylinder 50 is in the extended position so that the backrest frame 20 is in a high position and that the stool frame 30 is in a withdrawn position.

As the handle 51 is pivoted to the second position, the hydraulic cylinder 50 can be moved from the extended position shown in Figure 4 to the withdrawn position shown in Figure 5.

Referring to Figure 5, the backrest frame 20 is moved to a low position so that the stool frame 30 is moved to an extended position by means of the links 40. The hydraulic cylinder 50 is moved to the withdrawn position.

Referring to Figure 6, the handle 51 is released and returned to the first position. The hydraulic cylinder 50 is kept in the withdrawn position so that the backrest frame 20 is kept in the low position. Because of the links 40, the stool frame 30 is kept in the extended position. When the

reclining module is in the position of Figure 6, the recliner 10 is in the position of Figure 7 so that the user can lie in it.

If the handle 51 is pivoted to the second position and the backrest frame 20 and the stool frame 30 are both released, the hydraulic cylinder 50 will automatically extend so as to return the backrest frame 20 to the high position, and the stool frame 30 the withdrawn position.

The present invention has been described via detailed illustration of the preferred embodiment. Those skilled in the art can derive variations from the preferred embodiment without departing from the scope of the present invention. Therefore, the preferred embodiment shall not limit the scope of the present invention defined in the claims.